

1957 Summary of Disease Outbreaks

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THE NUMBER of disease outbreaks reported in 1957 for which either water or food was the vehicle of infection was essentially the same as in the past few years (table 1). The number of outbreaks reported by the various States apparently bore no direct relationship to the size of their populations but reflected the extent of activities in investigating epidemic occurrences. The number for a few States was relatively large because of the inclusion of outbreaks occurring on military installations located within their borders.

The method used to tabulate outbreaks was changed slightly from that used in previous summaries. Only those outbreaks with laboratory confirmation of a specific type of food poisoning or food infection were placed in definite categories such as salmonellosis, shigellosis, or staphylococcal food poisoning (table 2). Those without such confirmation were classed as gastroenteritis, etiology unknown. This change accounts largely for the sizable reduction of outbreaks attributed to staphylococcal food poisoning, approximately 50 percent compared with the years 1955 and 1956, when many outbreaks were classified according to clinical and epidemiological findings.

In addition to the usual method of tabulating the number of various types of outbreaks by States, each of the principal types of foodborne outbreaks was tabulated by kind of food involved and by either the place of occurrence or the source of food. As shown in table 3, poultry and other meats were associated with a large proportion of these occurrences. It is also apparent that a large proportion occurred in

groups of persons eating in public establishments and in private homes. However, the average number of persons per outbreak was relatively small as compared with the number in outbreaks occurring in schools or institutions and at social gatherings such as picnics and church gatherings.

No improvements in food-handling practices are apparent. Lack of refrigeration, exposure at room temperatures, or handling of food by persons with infections were mentioned frequently as contributing to or as the direct cause of the outbreak.

Waterborne Outbreaks

Comparatively few outbreaks occurred in 1957 for which water was demonstrated to be the vehicle of infection. In one instance, two persons with typhoid fever had used water from a dug well which presumably was contaminated by a chronic carrier who lived nearby. Gastroenteritis of unknown etiology occurred in two groups of individuals using water from wells that showed evidence of fecal contamination. One small group of cases of gastroenteritis occurred among passengers on an airplane. Inspection of the plane's drinking water supply suggested that it was the probable source of the illness.

Milkborne Outbreaks

Market milk was not reported as the source of infection in any outbreak of disease in 1957. However, two cases of brucellosis were found in one family in which raw milk had been used for a period of about 2 years. A case of Q fever was found in an individual who consumed raw

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milk during a milk strike. Some of the cows in the dairy supplying the milk were shown by laboratory tests to be infected with Q fever.

Milk products, mainly ice cream, were vehicles of infection in six outbreaks. Three of the five involving ice cream were caused by *Salmonella*. Since raw eggs were used in preparing the ice cream in two of these outbreaks, it is possible that they were the primary source of infection. In one instance, cream cheese served in a restaurant was thought to be the probable source of infection for a small group of persons with gastroenteritis.

Typhoid Fever

Only four outbreaks of typhoid fever were reported in which either food or water was definitely incriminated. Two cases occurred among workmen of a small factory supplied with drinking water from a dug well. The well probably was contaminated from a nearby cesspool receiving the stools of a known carrier. An explosive outbreak totaling 38 confirmed and 27 suspect cases of typhoid fever occurred in an institution. The outbreak was considered to be foodborne since the water supply was found satisfactory in every respect. One of the persons living in the institution was found to be a carrier. It was determined that she carried the same phage type (E₁) organism that was found in a number of the cases. In another outbreak of 17 cases, 14 were confirmed by isolation of a phage type (E₁) organism. All of the patients were members of the 7th grade of a public school. The manager of the cafeteria in the school was found to be a carrier and is presumed to be the source of infection, but the mode of contamination or the specific food involved was not determined. In another instance of 13 cases all of the patients had eaten in a restaurant where a carrier, not previously known, was employed as a busboy.

A group of three cases, not included in the tables, occurred in preschool children living in the same apartment building. A known carrier lived in this building, and another lived in another part of the housing development, but neither had any known contact with the

children. The organisms recovered from the first carrier and the children were all shown

Table 1. Foodborne and waterborne disease outbreaks reported in 1957, by vehicle of infection

Area	Water		Milk and milk products ¹		Other foods ¹	
	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases
United States..	4	131	8	67	250	11, 085
New England:						
Maine.....					5	49
Massachusetts.....					7	383
Rhode Island.....					3	66
Connecticut.....	1	25			3	38
Middle Atlantic:						
New York.....	1	2	1	5	18	936
New Jersey.....			1	1	5	424
Pennsylvania.....					1	17
East North Central:						
Ohio.....					2	42
Indiana.....					2	338
Illinois.....	1	100	1	16	14	317
Michigan.....					2	104
Wisconsin.....					3	115
West North Central:						
Minnesota.....					4	109
Iowa.....					2	20
Missouri.....					3	279
North Dakota.....					1	32
Nebraska.....					5	1, 394
South Atlantic:						
Maryland.....					12	1, 034
Virginia.....					6	237
West Virginia.....					1	100
North Carolina.....			1	6	3	177
South Carolina.....					2	75
Georgia.....					3	135
Florida.....					2	55
East South Central:						
Kentucky.....			1	2	5	60
Tennessee.....			1	19	4	233
Alabama.....					2	222
West South Central:						
Arkansas.....			1	16	2	36
Louisiana.....					5	1, 232
Mountain:						
Wyoming.....					1	4
Colorado.....	1	4			1	1
New Mexico.....					2	12
Arizona.....					2	165
Pacific:						
Washington.....					5	88
Oregon.....					4	137
California.....			1	2	106	2, 404
Hawaii.....					1	6
Not known.....					1	9
United States 1956..	9	1, 719	31	873	210	11, 133
United States 1955..	2	22	3	302	193	9, 633

¹ Includes outbreaks among military personnel.

Table 2. Foodborne, waterborne, and other disease outbreaks reported in 1957, by type of infection

Area	Typhoid fever		Salmonellosis ¹		Shigellosis		Trichinosis		Botulism		Staphylococcal food poisoning ¹		Streptococcal infections		Gastroenteritis, etiology unknown ¹		Toxic agents	
	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases
United States.....	4	70	30	1,607	11	754	1	14	6	12	58	1,660	4	1,030	135	6,065	8	68
New England:																		
Maine.....			2	8							2	26			1	15		
Massachusetts.....											2	110			5	273		
Rhode Island.....											2	34			1	32		
Connecticut.....											3	38			1	25		
Middle Atlantic:																		
New York.....	1	2	2	132	1	200	1	4			6	124			7	478	2	3
New Jersey.....			1	176					1	1					3	247		
Pennsylvania.....	1	17																
East North Central:																		
Ohio.....			1	12														1 30
Indiana.....	1	38											1	300				
Illinois.....			1	7							4	67			11	359		
Michigan.....											1	85			1	19		
Wisconsin.....															3	115		
West North Central:																		
Minnesota.....			1	45	1	11					1	10			1	43		
Iowa.....											1	3			1	17		
Missouri.....											3	279						
North Dakota.....															1	32		
Nebraska.....															5	1,394		
South Atlantic:																		
Maryland.....			1	20					1	2	2	52	1	600	7	360		
Virginia.....					2	90									3	131	1	16
West Virginia.....													1	100				
North Carolina.....			2	20							1	150			1	13		
South Carolina.....			1	39											1	36		
Georgia.....											1	66			2	69		
Florida.....					1	50									1	5		
East South Central:																		
Kentucky.....											2	13			4	49		
Tennessee.....			1	19							1	69			3	164		
Alabama.....					1	192									1	30		
West South Central:																		
Arkansas.....			1	16											2	36		
Louisiana.....			1	423											3	806	1	3
Mountain:																		
Wyoming.....							1	4										
Colorado.....									1	1					1	4		
New Mexico.....			1	11					1	1								
Arizona.....											2	165						
Pacific:																		
Washington.....					1	41			1	5	1	3			2	39		
Oregon.....											1	3			3	134		
California.....	1	13	14	679	4	170			1	2	21	354	1	30	60	1,140	3	16
Hawaii.....							1	6										
Unknown.....											1	9						
United States 1956.....	7	52	23	1,999	8	1,107	11	98	11	22	111	4,313			88	6,688	9	160
United States 1955.....	5	36	16	971	10	475	5	92	5	14	102	4,130			66	5,160	5	99

¹ Includes outbreaks among military personnel.

to be phage type E₁. Overflow of sewage from the building into the basement was pumped out on a lawn used by the children as a play area. It is possible that the children were infected on the playground. In another area, floods occurring in late spring washed out sewer mains and covered the sewage treatment plant of a large city. Seven cases are believed to have resulted directly or indirectly from this interruption of sewage disposal. One case in the same city was considered to have resulted from a fall into the river when it was highly polluted with sewage.

Salmonellosis

Thirty outbreaks of salmonellosis were reported in 1957, all of which were confirmed by

recovery of organisms either from the stools of those who were ill, from food handlers, or from specimens of food. In six of the outbreaks, poultry meat—usually turkey—was eaten. A comparatively large number of the outbreaks occurred in homes. The smallest consisted of 3 cases and the largest of 70 cases following a wedding reception at which turkey was served. One large outbreak occurred simultaneously among persons attending dinners in several churches of one community. The food served by a single caterer from another State was transported about 400 miles in this outbreak.

Fifteen types of *Salmonella* organisms were isolated in the 30 outbreaks. Among the types recovered were *S. typhimurium* in 11, *S. newport* in 4, *S. montevideo* and *S. tennessee* in 2

Table 3. Outbreaks of certain foodborne diseases reported in 1957, by type and source of food

Source	Salmonellosis		Shigellosis		Staphylococcal food poisoning		Streptococcal infections		Gastroenteritis, etiology unknown	
	Number of outbreaks	Number of persons affected	Number of outbreaks	Number of persons affected	Number of outbreaks	Number of persons affected	Number of outbreaks	Number of persons affected	Number of outbreaks	Number of persons affected
Type of food										
Poultry	6	464	1	50	10	340	1	30	18	1, 188
Other meat	2	21	1	3	21	519	0	-----	41	1, 496
Custard-filled dessert	2	23	0	-----	10	167	0	-----	12	186
Salad	3	105	1	192	2	36	2	900	7	456
Other	7	135	1	12	10	231	1	100	12	106
Not determined	10	859	7	497	5	367	0	-----	42	2, 503
Total	30	1, 607	11	754	58	1, 660	4	1, 030	132	5, 935
Source of food										
Public eating establishments	5	274	3	73	10	111	0	-----	39	421
Private clubs	5	498	0	-----	4	147	1	100	5	179
Schools	0	-----	2	289	5	158	0	-----	8	897
Colleges	0	-----	1	79	1	7	0	-----	3	617
Hospitals and institutions	3	38	2	91	2	41	0	-----	3	700
Recreation camps	0	-----	0	-----	2	96	0	-----	4	184
Labor camps	0	-----	0	-----	3	161	0	-----	7	213
Social gatherings	2	508	0	-----	7	337	3	930	11	1, 230
Bakery caterers	1	3	0	-----	11	111	0	-----	5	97
Private homes	12	233	2	22	9	63	0	-----	23	181
Transportation	1	14	0	-----	0	-----	0	-----	3	89
Other	1	39	1	200	4	428	0	-----	21	1, 127
Total	30	1, 607	11	754	58	1, 660	4	1, 030	132	5, 935

each. In one outbreak 2 types, *S. give* and *S. sandiego*, were recovered; in another, 3 types, *S. barielly*, *S. montevideo*, and *S. reading*.

Early in 1957 it was noticed that an unusual number of *S. reading* infections were occurring. A sharp rise in the number began in September 1956 and reached a peak of 71 cases in February 1957. Infections were identified almost simultaneously in several widely separated areas of the country. During the 12-month period beginning in September 1956, there were 325 acute, sporadic cases and 3 outbreaks due to this type of organism. Previously *S. reading* was very rarely identified among the *Salmonella* isolates from human or animal infections occurring in the United States. Of the cases reported, 70 percent were in children 6 years of age or under and 18 percent in children under 1 year. The epidemiological picture strongly suggested a widely distributed common source of infection, but despite intensive investigation by means of detailed food histories, no common vehicle was identified.

Shigellosis

Eleven outbreaks of shigellosis were reported in 1957. Water was not regarded as the vehicle in any of them. As shown in table 3, three of them involved eating in public eating places, two occurred in institutions, and two in schools. The food involved in transmission of the infection was not determined in 7 of the 11 outbreaks. *Shigella sonnei* was recovered in 2 outbreaks, *Shigella flexneri* in 4, and the species was not stated in the remaining 5.

Trichinosis

Three relatively small outbreaks of trichinosis were reported in 1957. In one family outbreak comprising 4 cases, sausage or chopped beef that may have been contaminated in a meat grinder was the probable source of infection. Four other cases, proved by biopsy, followed consumption of homemade garlic sausage. Consumption of raw pork and liver preceded acute trichinosis in 6 patients, 3 of whom died. Numerous trichina larvae were found at autopsy of two and by muscle biopsy

in others. Calcified cysts indicating previous infestations were found in some of the specimens. Specimens from a slaughtered pig also showed numerous trichina larvae.

Botulism

Six separate reports of botulism afflicting 12 persons were reported in 1957. Home-canned foods had been eaten in each instance. These included a gluten preparation, sausage, mushrooms, stringbeans, corn, and tuna fish. The type of infection was reported in only one instance, type A botulinus toxin being found in the tuna fish. Four of the 12 persons with botulism died.

Staphylococcal Food Poisoning

Most of the 58 outbreaks of staphylococcal food poisoning reported occurred in groups of persons who had eaten in public establishments or in private homes, or had consumed food obtained from bakeries and caterers. Poultry and other meats were most commonly associated with these outbreaks. Eclairs and custard-filled cakes and pies were proved by laboratory tests to be the vehicles of infection in only 10 outbreaks. These types of food were suspected in 12 additional episodes, but the cases were tabulated as gastroenteritis, etiology unknown, because laboratory confirmation was not obtained.

Streptococcal Infections

Four relatively large epidemics of streptococcal infection were traced to food eaten at social gatherings. In one instance, it was estimated that about two-thirds of the 900 who attended a charity luncheon became ill with septic sore throat. Egg salad served at the luncheon was considered to be the vehicle of infection. In another epidemic which occurred among those attending a social, the potato salad was found to contain large numbers of streptococci. Symptoms of gastroenteritis characterized the illness. Thirty persons became ill with cramps and diarrhea following a church picnic where chicken salad was served. This food contained streptococci. Following a school picnic in another area, large numbers of strepto-

cocci were found in meat loaf, potato salad, and coleslaw served to the children, 100 of whom developed gastroenteritis.

Gastroenteritis, Etiology Unknown

The number of reported outbreaks with unknown etiology constituted more than half of the total of foodborne and waterborne outbreaks. In about 45 percent of them, poultry and other meats were considered the vehicles of infection. About the same percentage occurred in persons eating in public eating establishments and in private homes. In most of the 132 foodborne outbreaks, investigators were unable to obtain specimens of food for laboratory testing. In a small number, specimens were obtained but showed none of the organisms usually associated etiologically with food infection or food poisoning.

Chemical Poisoning and Noxious Foods

In one of the four reports of chemical poisoning, 3 persons showed clinical signs of acute lead poisoning. They had cramps and diar-

rhea and complained of a metallic taste after eating duck meat. The ducks had been shot and stored in a freezer for 2 months. A laboratory test showed the presence of lead in leftover portions of the duck meat. In another outbreak, lemonade prepared in a cadmium-lined can produced illness in every person who drank it at a school picnic. The lemonade contained 62.7 ppm of cadmium, and vomitus from patients contained 15.0 ppm of the metal. A case of poisoning occurred in one child who ate chocolate-covered ice cream on a stick. A washing powder, sodium metasilicate, may have spilled into the molds used in making the ice cream sticks, or it may have remained in the molds after cleaning. In another instance, 16 persons became ill shortly after eating breakfast on an excursion boat. The type and source of toxic agent could not be determined.

In four outbreaks reported, ingested foods produced toxic symptoms. In two instances, mushrooms were eaten. Castor beans caused illness in another. Consumption of smoked fish was reported as the probable cause of acute toxic symptoms in six persons.

Conference on Staphylococcal Infections

A conference on staphylococcal infections will be held at the Communicable Disease Center of the Public Health Service in Atlanta, Ga., September 15-17, 1958.

Representatives of 40 hospital, medical, and other professional organizations will confer on control measures that can be established in hospitals and communities to deal with the mounting problem of infections caused by bacteria which are resistant to penicillin and other antibiotic drugs.

The conference, recommended by the American Hospital Association, will be sponsored by the National Research Council and the Public Health Service.